MATHEMATICS OF COMPUTATION
TABLE OF CONTENTS
January 1991

James H. Bramble, Joseph E. Pasciak, and Jinchao Xu, The analysis of multigrid algorithms with nonnested spaces or noninherited quadratic forms 1

A. K. Aziz and J.-L. Liu, A Galerkin method for the forward-backward heat equation 35

Georges-Henri Cottet, Large-time behavior of deterministic particle approximations to the Navier-Stokes equations 45

T. Lin, J. Sochacki, R. Ewing, and J. George, Some grid refinement schemes for hyperbolic equations with piecewise constant coefficients 61

Robert Glassey and Jack Schaeffer, Convergence of a second-order scheme for semilinear hyperbolic equations in $2 + 1$ dimensions 87

I-Liang Chern, Large-time behavior of solutions of Lax-Friedrichs finite difference equations for hyperbolic systems of conservation laws ... 107

Kendall E. Atkinson and Ian H. Sloan, The numerical solution of first-kind logarithmic-kernel integral equations on smooth open arcs 119

Hideaki Kaneko and Yuesheng Xu, Degenerate kernel method for Hammerstein equations 141

P. P. B. Eggermont and Ch. Lubich, Uniform error estimates of operational quadrature methods for nonlinear convolution equations on the half-line 149

H. W. J. Lenferink, Contractivity-preserving implicit linear multistep methods 177

Claus Schneider, Rosenbrock-type methods adapted to differential-algebraic systems 201

Howard C. Elman and Gene H. Golub, Iterative methods for cyclically reduced non-self-adjoint linear systems. II 215

J. N. Lyness, T. Sørevik, and P. Keast, Notes on integration and integer sublattices 243

Shaun Disney and Ian H. Sloan, Error bounds for the method of good lattice points 257

B. C. Carlson, A table of elliptic integrals: One quadratic factor 267

G. Steidl and M. Tasche, A polynomial approach to fast algorithms for discrete Fourier-cosine and Fourier-sine transforms 281

Jürgen Eichenauer-Herrmann, Inversive congruential pseudorandom numbers avoid the planes 297

A. Ivić and H. J. J. te Riele, On the zeros of the error term for the mean square of $|\zeta(\frac{1}{2} + it)|$ 303

H. W. Lenstra Jr., Finding isomorphisms between finite fields 329

L. N. Vaserstein, Sums of cubes in polynomial rings 349

M. Aaltonen and K. Inkeri, Catalan's equation $x^p - y^q = 1$ and related congruences 359

Steven Arno, A note on Perrin pseudoprimes 371

Reviews and Descriptions of Tabies and Books 377
Schwarz **1**, Parker and Chua **2**, Kress **3**, Golub and Van Loan **4**, Abaffy and Spedicato **5**, Mittelmann and Roose, Editors **6**, Prenter **7**, Pinkus **8**, Chui, Schempp, and Zeller, Editors **9**, Su and Liu **10**, Wong **11**, Press, Flannery, Teukolsky, and Vetterling **12**, Scheid **13**, Bowman and Shenton **14**, Digby, Galwey, and Lane **15**, Pless **16**, Heiberger **17**, Bressoud **18**, Cox **19**, Borwein and Borwein **20**, Vajda **21**, Bank, Bulirsch, and Merten, Editors **22**, Kincaid and Hayes, Editors **23**
Table Errata 407
Kumar and Jain **613**

TABLE OF CONTENTS

April 1991

Charles I. Goldstein, Multigrid analysis of finite element methods with numerical integration 409
R. E. Ewing, R. D. Lazarov, and P. S. Vassilevski, Local refinement techniques for elliptic problems on cell-centered grids I. Error analysis . 437
James H. Bramble and Jinchao Xu, Some estimates for a weighted L^2 projection 463
Junping Wang, Superconvergence and extrapolation for mixed finite element methods on rectangular domains 477
Georgios D. Akrivis and Vassilios A. Dougalis, Finite difference discretizations of some initial and boundary value problems with interface .. 505
Max D. Gunzburger, Amnon J. Meir, and Janet S. Peterson, On the existence, uniqueness, and finite element approximation of solutions of the equations of stationary, incompressible magnetohydrodynamics 523
David Gottlieb and Eitan Tadmor, The CFL condition for spectral approximations to hyperbolic initial-boundary value problems 565
Thomas Hagstrom, Asymptotic boundary conditions for dissipative waves: General theory 589
Mingyou Huang, A Hamiltonian approximation to simulate solitary waves of the Korteweg-de Vries equation 607
Christian Lécot, A quasi-Monte Carlo method for the Boltzmann equation 621
Brynjulf Owren and Marino Zennaro, Order barriers for continuous explicit Runge-Kutta methods 645
Martin Stynes and Eugene O'Riordan, An analysis of a singularly perturbed two-point boundary value problem using only finite element techniques 663
Qiang Ye, A convergence analysis for nonsymmetric Lanczos algorithms. 677
T. Y. Li and Xiaoshen Wang, Solving deficient polynomial systems with homotopies which keep the subschemes at infinity invariant 693
Bernd Fischer and Gene H. Golub, On generating polynomials which are orthogonal over several intervals 711

Philip Rabinowitz, Uniform convergence results for Cauchy principal value integrals 731
Takemitsu Hasegawa and Tatsuo Torii, An automatic quadrature for Cauchy principal value integrals 741
Daniela Calvetti, A stochastic roundoff error analysis for the Fast Fourier Transform 755
Richard Blecksmith, John Brillhart, and Irving Gerst, On a certain (mod 2) identity and a method of proof by expansion 775
Henri Darmon, Note on a polynomial of Emma Lehmer 795
F. Diaz y Diaz, A table of totally real quintic number fields 801
Stanislav Jakubec, Juraj Kostra, and Karol Nemoga, On the existence of an integral normal basis generated by a unit in prime extensions of rational numbers 809
Yoshiharu Kurita and Makoto Matsumoto, Primitive t-nomials $(t = 3, 5)$ over $GF(2)$ whose degree is a Mersenne exponent ≤ 44497..... 817
Brigitte Vallée, Generation of elements with small modular squares and provably fast integer factoring algorithms..... 823
R. Ernvall and T. Metsänkylä, Cyclotomic invariants for primes between 125000 and 150000 851
Patrick Costello, Amicable pairs of the form $(i, 1)$ 859
W. N. Colquitt and L. Welsh, Jr., A new Mersenne prime 867
Achim Flammenkamp, New sociable numbers 871
Reviews and Descriptions of Tables and Books..... 875
Nürnberger **24**, Tolimieri, An, and Lu **25**, Mockus **26**, United Laboratories, Inc. **27**, Belinfante and Kolman **28**
Index to Volume 56 887
Supplement to "A table of totally real quintic number fields" by **F. Diaz y Diaz** S1